

### **Kinematics Theory Review**

1. Something defined by an observer in which positions or motions can be compared.
2. Meaning 'to be without motion' in a specific frame of reference.
3. Velocity in which the distance travelled is equal during given equal time intervals.
4. Velocity in which the distance travelled is increasing during equal time intervals.
5. Velocity in which the distance travelled is decreasing during equal time intervals.
6. The frame of reference often used in physics to depict motion.
7. Quantities that have only a magnitude or size.
8. Quantities described by both magnitude and direction.
9. Examples of scalar quantities.
10. Examples of vector quantities.
11. An arrow drawn in a frame of reference like a co-ordinate system represents a -----.
12. The length of a vector represents a quantity's -----.
13. The direction of a vector in a co-ordinate system can be indicated by using -----.
14. The vector difference between a final and initial position of an object is -----.
15. -----indicated a time interval between 2 instances of time.
16. What is the velocity of a car travelling around a 400m track in 400 s?
17. What is the speed of a car travelling around a 400 m track in 400 s.
18. A vector representing a sum or difference is called a -----.
19. A vector can be moved within a frame of reference as long as the ----- isn't changed.
20. When adding vectors in a co-ordinate system they are aligned -----.
21. When adding vectors the resultant is drawn from the ----- of the first to the ----- of the second.
22. The resultant's position is always measured with respect to the ----- axis.
23. Before drawing vectors representing motion an appropriate ----- must be chosen.
24. If an object moves [W30°S], what direction would it have to move to return to its original location?
25. The term ----- indicated subtraction in vector problems.
26. Multiplying a vector quantity by a coefficient changes its ----- not its -----.
27. One method for subtracting vectors is to align them ----- to ----- in a co-ordinate system.
28. For  $A_2 - A_1$  the resultant is drawn from the ----- to the -----.
29. ----- motion involves a change in velocities magnitude or direction.
30. ----- motion implies that velocity remains constant.
31. Calculating an average velocity ignores the fact that velocity could ----- within a time interval.
32. The slope of a position-time graph gives -----.
33. The units for velocity are -----.
34. The units for acceleration are -----.

35. The units for time are -----.
36. The units for distance are -----.
37. Sketch a position-time graph indicating an object at rest.
38. Sketch a position-time graph indicating an object accelerating positively.
39. Sketch a position-time graph indicating constant velocity.
40. Finding the slope of a ----- to the curve of a position-time graph gives the instantaneous velocity.
41. ----- is the rate of change of velocity.
42. ----- is the rate of change of distance.
43. The slope of a velocity-time graph gives acceleration.
44. Uniform acceleration means the acceleration does/does not change throughout specific time intervals.
45. Sketch a velocity-time graph indicating an object at rest.
46. Sketch a velocity-time graph indicating an object accelerating positively.
47. Sketch a velocity-time graph indicating constant velocity.
48. ' $g$ ' is the symbol representing -----.
49. The value of  $g$  is -----.
50. When a ball is thrown in the air, at what point would it be accelerating, but have an instantaneous velocity of zero?
51. ----- acceleration is indicated by a straight line slope on an acceleration-time graph.
52. The acceleration of gravity is uniform and ----- of mass.
53. The reason a piece of paper and a book fall at different rates in a classroom is due to -----.
54. Kinematics equations can only be used for ----- acceleration problems.
55. The area under the curve of a velocity-time graph is the -----.